

to occur in a different habitat in Pennsylvania and New Jersey. Stone¹ reports it from "Damp meadows or bogs in the Middle district, near the Delaware River, local and not common."

U. S. NATIONAL MUSEUM, Washington, D. C.

TWO NEW MYRIOPHYLLUMS AND A SPECIES NEW TO THE UNITED STATES.

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MYRIOPHYLLUM exalbescens, n. sp., herba aquatica, caule glaberrimo folioso simplice vel ramoso purpureo in statu exsiccato exalbescente; foliis verticillatis raro 3^{nis} plerumque 4^{nis} 1.2-3 cm. longis, segmentis 7-11-jugis capillaceis flaccidis vix subrigidis 0.5-3 cm. longis; spicis terminalibus subnudis, floribus verticillatis inferioribus foemineis superioribus masculis sessilibus; bracteis fructum rare aequantibus spatulato-obovatis vel oblongo-cochleiformibus inferioribus serratis superioribus integris; bracteolis ovatis integris brunneo-marginatis 0.7-1 mm. longis; petalis oblongo-obovatis concavis 2.5 mm. longis; staminibus 8, antheris oblongis 1.2-1.8 mm. longis; fructibus subglobosis angustissime 4-sulcatis 2.3-3 mm. longis, merocarpiis dorso rotundatis laevibus vel rugulosis.

Aquatic herb; the stem glabrous, leafy, simple or branching, purple, in the dried state becoming white: leaves verticillate, rarely in 3's, commonly in 4's, 1.2-3 cm. long, with 7-11 pairs of capillary flaccid or barely a little rigid segments: spikes terminal, almost naked, the flowers verticillate; the lower pistillate, the upper staminate, sessile: bracts rarely equalling the fruit, spatulate-obovate or oblong-cochleiform; the lower serrate, the upper entire: bracteoles ovate, entire, brown-margined, 0.7-1 mm. long: petals oblong-obovate, concave, 2.5 mm. long: stamens 8; anthers oblong, 1.2-1.8 mm. long: fruits subglobose, very slenderly 4-sulcate, 2.3-3 mm. long; the merocarps rounded on the back, smooth or rugulose.—Ponds, pools and quiet streams, often brackish or calcareous, Greenland and Labrador to Washington, south to western Newfoundland, Cape Breton, southern New Brunswick, southern New England, southeastern, central and western New York, the Great Lake region, Kansas, Arizona and southern California. GREENLAND: Ikerasak, July 19, 1892, *Vandhöffen*. LABRADOR: shallow sandy-bottomed

¹ Plants of southern New Jersey 777 (1911).

pools, Blanc Sablon River, August 4, 1910, *Fernald & Wiegand*, no. 3,753. NEWFOUNDLAND: pools in limestone barrens, Pointe Riche, August 4, 1910, *Fernald & Wiegand*, no. 3,754. MAGDALEN ISLANDS: shallow pools among the sand ridges between East Cape and East Point, Coffin Island, *Fernald, Bartram, Long & St. John*, no. 7,842. QUEBEC: shallow pond, Longue Pointe, Brest, July 31, 1915, *St. John*, nos. 90,616, 90,617; brackish pools and dead waters near the mouth of Dartmouth River, August 26 and 27, 1904, *Collins, Fernald & Pease*; York River, July 29, 1905, *Williams, Collins & Fernald* (TYPE in Gray Herb.). PRINCE EDWARD ISLAND: shallow pools in *Thuja* swamps, Tignish, August 6, 1912, *Fernald, Long & St. John*, no. 7,840; Black Pond, July 28, 1912, *Fernald, Bartram, Long & St. John*, no. 7,841. NOVA SCOTIA: lake at Bay St. Lawrence, Cape Breton, August 12, 1904, *J. R. Churchill*. MAINE: near margins of lakes in 3–10 feet of water, St. Francis River, August 14, 1902, *Eggleston & Fernald* (*Eggleston*, no. 3,024); quiet pools, St. Croix River, Calais, August 3, 1909, *Fernald*, no. 2,014. VERMONT: Shelburne, July 31, 1894, *A. J. Grout*; Dorset, July 28, 1898, *M. A. Day*. MASSACHUSETTS: Idlewild Lake, Wenham, September 13, 1908, *F. S. Collins*; Mystic Pond, Medford, September 24, 1865, *Wm. Boott*; Fresh Pond, Cambridge, *Faxon et al.*; outlet of Stockbridge Bowl, Stockbridge, August 9, 1914, *Hoffmann*. CONNECTICUT: New Haven, 1857, *D. C. Eaton*; pond near headwaters of Saugatuck River, Danbury, July 21, 1917, *E. H. Eames & C. C. Godfrey*. NEW YORK: Sucker Brook, Lisbon, June 22, 1914, *O. P. Phelps*, no. 717 in part; Elmira, 1859, *E. Tatnall*. ONTARIO: Ottawa River below Britannia, August 21, 1911, *J. Macoun*, no. 85,941; Rideau River, Cummings Bridge, September 7, 1911, *J. Macoun*, no. 85,942; Smith's Falls, July 14, 1898, *J. Fowler*. OHIO: Cedar Point, Erie Co., July 8, 1894, *E. L. Moseley*. MICHIGAN: Lansing, August 18, 1885, *L. H. Bailey*. WISCONSIN: Milwaukee, *I. A. Lapham*; Green Bay near Bars Channel, June 29, 1890, *J. H. Schuette*. ILLINOIS: Fox River, 1862, *Geo. Vasey*; in a peat-bog lake, Lake Villa, Lake Co., August 8, 1906, *Gleason & Shobe*, no. 178 (distributed as *Ceratophyllum demersum*). MINNESOTA: Lake of the Woods, June 26, 1894, *McMillan & Sheldon*, no. 568. NORTH DAKOTA: pools, Leeds, August 5, 1900, *J. Lunell*. SOUTH DAKOTA: Sioux River, Brookings, July 4, 1894, *J. J. Thornber*. NEBRASKA: Swan Lake, Grant Co., August 7, 1893, *Rydberg*, no. 1,651. KANSAS: ponds, Decatur Co., June 26, 1897, *A. S. Hitchcock*, no. 1,083. SASKATCHEWAN: 1858, *Bourgeau*; Crane Lake, June 16, 1894, *J. Macoun*, no. 4,934. MONTANA: Bitterroot Valley near Missoula, August 4, 1880, *S. Watson*, no. 143; Cliff Lake, Madison Co., July 27, 1897, *Rydberg & Bessey*, no. 4,591. WYOMING: Bath Lake, September 8, 1896, *A. Nelson*, no. 2,782; Green River, August 26, 1894, *A. Nelson*, no. 1,038. COLORADO: ponds, Tabeguache Basin, July 21, 1913, *E. Payson*, no. 145; Gunnison, August 16, 1901, *C. F. Baker*, no. 824

(form with remarkably elongate bracts). ARIZONA: Mormon Lake, June 6, 1898, *MacDougal*, no. 75. IDAHO: Pend Oreille River, 1861, *Lyall*; ponds and streams, Falk's Store, Canyon Co., June 28, 1910, *J. F. Macbride*, no. 302. CALIFORNIA: Big Meadows, August, 1879, *Mrs. R. M. Austin*; Presidio, June, 1891, *Michiner & Bioletti*, no. 175; Mountain Lake, San Francisco, June 27, 1892, *J. W. Blankinship*; Bear Valley, San Bernardino Mts., August, 1882, *Parish*, no. 1,433. OREGON: sluggish stream, Malheur Co., June 24, 1898, *Cusick*, no. 1,959. WASHINGTON: Seattle, August, 1892, *Piper*, no. 1,132; Lake Cushman, Mason Co., August, 1895, *Piper*, no. 2,230; Blakeley Island, San Juan Islands, 1917, *S. M. & E. B. Zeller*, no. 1,144 (distributed as *Ceratophyllum demersum*).

Myriophyllum exalbescens has always passed in America as *M. spicatum* L. The latter species of Eurasia, however, differs from the American plant in several characters: the principal leaves of the primary stems have 14–21 pairs of rigid slenderly linear divisions; the bracts are rhombic-obovate; the bractlets are suborbicular or reniform, broader than long, and distinctly shorter than in most of *M. exalbescens*, 0.5–0.8 mm. long; and the linear anthers tend to be longer, being 1.8–2.2 mm. in length. In *M. exalbescens*, furthermore, the dried stems very strongly tend to become white, although this change is not always noted; in *M. spicatum*, however, the old herbarium-specimens still retain a fulvous or olivaceous tone in the stems.

On the Magdalen Islands occurs a species of *Myriophyllum* which in foliage and in the whitening of the stem upon drying strongly suggests *M. exalbescens* but with fruit so very unlike that of the latter species or of the old world *M. spicatum* or of any species known to the writer that it is here proposed as

MYRIOPHYLLUM **magdalense**, n. sp., *M. exalbescenti* simile; caule ramoso in statu exsiccato exalbescente, foliis plerumque 4^{nis} 1–2 cm. longis segmentis 3–7-jugis capillaceis flaccidis 0.5–1.3 cm. longis, superioribus emergentibus elongato-oblanco-latis vel linearibus breviter pectinatis vel subintegris; spicis terminalibus rhachi filiformi floribus verticillatis inferioribus foemineis superioribus masculis sessilibus; bracteis elongatis lineari-oblanco-latis conduplicatis apice sursum curvatis integris vel inferioribus pectinatis 0.3–1 cm. longis; bracteolis ovatis 0.6–0.8 mm. longis; petalis ovato-oblongis concavis, 1.5 mm. longis; staminibus 8, antheris oblongis 1.5 mm. longis (immaturis); fructibus subglobosis 3 mm. longis latissime 4-sulcatis, merocarpiis dorso rotundatis rugosis.

Similar to *M. exalbescens*; the stem branching, becoming white when dried: leaves mostly in 4's, 1–2 cm. long, with 3–7 pairs of capillary flaccid segments 0.5–1.3 cm. long; the upper emergent ones elongate-oblongate or linear, short-pectinate or subentire: spikes terminal, with the rhachis filiform; flowers verticillate, the lower pistillate, the upper staminate, sessile: bracts elongate, linear-oblongate, conduplicate, up-curved at the end, entire or the lower pectinate, 0.3–1 cm. long: bractlets ovate, 0.6–0.8 mm. long: petals ovate-oblong, concave, 1.5 mm. long: stamens 8; anthers oblong, 1.5 mm. long (immature); fruits subglobose, 3 mm. long, very broadly 4-sulcate; the merocarps with rounded rugose backs.—MAGDALEN ISLANDS, QUEBEC: shallow ponds among the sand hills between East Cape and East Point, Coffin Island, August 17, 1912, *Fernald, Long & St. John*, no. 7,843 (TYPE in Gray Herb.).

In the whitening of its stem *M. magdalense* simulates *M. exalbescens* from which it differs in the elongate, entire or subentire upper leaves, the elongate bracts, the very short petals and especially in the very broadly and openly sulcate fruits. From *M. spicatum* it differs in the whitening stem, the few capillary and flaccid segments of the leaves, the elongate bracts (sometimes found also in varieties of *M. spicatum*), the ovate bractlets, the short petals and anthers, and in the very characteristic fruit, the fruits of *M. spicatum* being slenderly sulcate as in *M. exalbescens*.

Unfortunately the material of *M. magdalense* is mostly immature, only one plant being found with good fruit. The species filled a single small pond to the exclusion of other species and flowered freely so that a visit in September should yield abundant fruiting material. The *Myriophyllum* of neighboring pools was *M. exalbescens* and in a single station *M. verticillatum*, var. *intermedium* Koch, which apparently has not heretofore been found in North America.

In the Gray Herbarium, among the various species which have been erroneously called by their collectors *Myriophyllum verticillatum* is a sheet from Farewell Bend, Crook Co., Oregon, collected in July, 1894 by J. B. Leiberger (no. 465), which is quite unlike any recognized North American plant. In its very glaucous or blue-green, emersed, broad, entire or variously serrate leaves and the tendency of the inflorescence to fork it is unique among American plants as it is in the very long (2 mm.) slenderly triangular, serrate bractlets. This plant proves to be a well known species of the southern hemisphere,

M. ELATINOIDES Gaudichaud, Ann. Sci. Nat. v. 105 (1825) = *M. titikakense* Remy, Ann. Sci. Nat. sér. 3, vi. 352 (1846). *M. elatinoides* is one of that remarkable group of species confined to southern Australia, Tasmania and New Zealand and America but not known in Africa nor Eurasia. Outside the Australian region it has been heretofore known only as a common Andean species, from the Falkland Islands and Tierra del Fuego along the higher Andes to Ecuador. In the *Pflanzenreich* Schindler cites a specimen of Botteri's collected somewhere in Mexico, the station not known. The discovery of this Australian and Andean species in Oregon¹ is, therefore, highly important and particularly striking as adding another to a small group of plants which have followed essentially similar lines of migration. Occasionally these Andean plants are also in eastern America, for instance *Polystichum scopulinum* (D. C. Eaton) Maxon. In writing elsewhere of the distribution of that and its allies the present writer has said: "I refer to *P. mohrioides* and its allies (fig. 17). There are four or five species of this alliance, all plants of the highest degree of localization. *P. mohrioides* and other austral species are known only from the Antarctic Prince Edward Islands, 1,200 miles southeast of the Cape of Good Hope, from the Falkland Islands, Tierra del Fuego, and Patagonia, and as the rarest of isolated species in the Andes. In North America we have two species so close to *P. mohrioides* that some authors have considered them inseparable: *P. Lemmoni*, a famous rare species of the mountains of California, Oregon and Washington; and *P. scopulinum* of similar range, though even rarer, and found with *Pellaea densa* on arid mountain-walls of Gaspé County, Quebec."² Now that the Andean *Myriophyllum elatinoides* has been found in Oregon, we may, therefore, watch for it with some confidence in the Gaspé or Newfoundland waters.

Schindler cites in the synonymy of *M. elatinoides*, *M. quitense* HBK. Nov. Gen. et Sp. vi. 89 (1823) and if the identification is confirmed *M. quitense* must be maintained as the earliest name. The description, however, is not satisfactory, for the plant is described as near *M. spicatum*, with all the leaves immersed and pectinate-pinnatisect.

GRAY HERBARIUM.

¹ Since the above went into type a beautiful sheet of *M. elatinoides* has been received from Prof. Morton E. Peck, collected in Des Chutes River, Oregon, July 27, 1914 (Peck, no. 5718).

² Fernald, Am. Jour. Bot. v. 231 (1918).